

ART II.—*Further Descriptions of the Tertiary Polyzoa
of Victoria.*—Part I.

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(Plates I. and II.)

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At the suggestion of Professor Spencer, I have undertaken to continue the examination of the fossil polyzoa found in the Tertiary strata of Victoria, and thereby supplement the work of the late Dr. Macgillivray, whose valuable Monograph appeared in the Transactions of this Society; and I would remark that it is with the greatest pleasure I do so, now that I have time to devote to the work, for from 1866 until 1884 I studied the recent polyzoa, and during all that time received great assistance from Dr. Macgillivray. Afterwards my official duties necessitated constant travelling, and I had to discontinue working at them; so I gave my undescribed material to him, and I have pleasing reminiscences of evenings spent at Bendigo with him in the examination and discussion of new species.

Thanks to the kindness of Mr. T. S. Hall and Mr. J. Demant, I am in possession of material collected from many localities, which has yielded me, so far, the majority of the species already recorded, and also many new forms. The present paper deals with some new species of Catenicellidæ, together with some oœcia (of known species) which have not hitherto been described.

Though I am quite aware of the evil of making unnecessary species, I have described the fertile zoœcia of Catenicellæ and Strophipora which I have found as new species, because, as all the fossil specimens are in single internodes, in consequence of the corneous connecting tubes being destroyed, it is impossible to determine whether they are oœcia of known species or not; for those in the recent and, presumptively, also those in the fossil species differ considerably from the form of the normal or infertile zoœcia. In the Claviporellæ and Caloporellæ it is different, as the oœcia in these genera are adnate upon, or

conjoined to, normal cells ; consequently, I have been enabled to assign two of those I have found to species already described.

The type specimens will be deposited in the National Museum.

Catenicella orbicularis, n. sp. (Pl. I., Fig. 1).

Zoecium very large, orbicular, the front slightly flattened, occupied with a series of large, irregularly shaped, tubular fenestræ diverging from a central line to the margin, mostly broken away, and separated by shallow grooves. Lateral processes small, with a large avicularium at each upper angle of the zoecium and a narrow long infra-avicularian depression. Thyrostome arched above, slightly curved below.

Locality.—Balcombe Bay, Mornington. (T. S. Hall).

I have found only one specimen of this species ; it is allied to *C. latifrons*, but is at once distinguished therefrom by its large size and nearly spherical shape.

Catenicella macgillivrayi, n. sp. (Pl. I., Fig. 2).

Zoecium (fertile only found) small, semi-globose, with seven small fenestræ ; lateral area broad, smooth, with an extension at one upper angle, which may be avicularian. Oecium oval, with a slightly depressed falciform, granular area in each side. Oecial aperture semicircular above ; lower lip sinuous, with a small sinus in the middle. There is a projecting tube above the oecium, which possibly may have borne an avicularium.

Locality.—Muddy Creek. (T. S. Hall). A single specimen.

This species and the next are of the usual type of oœcia of *Catenicellæ*, of which none have hitherto been found fossil.

Catenicella spenceri, n. sp. (Pl. I., Fig. 3).

Zoecium (fertile only found) broad, subtriangular with four fenestræ. Lateral processes wide. Oecial aperture very broad, semicircular above ; lower lip wide, sinuous, having a shallow sinus in the centre. Oecium large, oval, with two large, reniform depressed areas, with raised upper margins on the front ; above the oecium is a plate with two perforations, which is not perfect ; it was accidentally broken in the mounting, one perforation only is left.

Locality.—Muddy Creek. (T. S. Hall). A single specimen.

Catenicella dædala, McG. (Pl. I., Figs. 4 and 5).

Dr. Macgillivray mentions only geminate pairs of this species. I have found single zoëcia.

Locality.—Balcombe Bay, Mornington. (T. S. Hall).

Some of my specimens are evidently in a more perfect state than the one figured in the Monograph (Pl. I., Fig. 28), the avicularium being clearly defined, and apparently with the mandible *in situ*. The ridges between the infra-avicularian and pedal depressions and around the fenestrate area are very prominent. An outline (Fig. 5) is given to show the great dorsal rotundity.

Catenicella elegantissima, n. sp. (Pl. I., Fig. 6).

Primary and lateral zoëcia ovate, with 5·7 fenestræ in a scutiform area; lateral processes wide. In the upper zoëcium there is a ridge extending upwards from the thyrostome, with two branches at right angles to it; thyrostome arched above, straight below; there is a small round pore below each lower angle, and between them a small semicircular elevation. In the lateral zoëcium the thyrostome is arched above, nearly straight below, with the upper part of the peristome slightly raised; a ridge extends upwards and branches similar to, but not exactly like, that in the upper zoëcium. The oëcium is adnate to the zoëcia (a condition rarely found in true *Catenicellæ*); it is large, ovate, with two large depressed, granulated areas, separated by a vertical ridge.

Locality.—Balcombe Bay, Mornington. (T. S. Hall).

This is a most interesting specimen, as it consists of three zoëcia and an oëcium in one internode. It and *C. porosa* (McG.) form a new and distinct type of the genus *Catenicella* as defined by Dr. MacGillivray. I have only seen one specimen.

Caloporella grandis, n. sp. (Pl. I., Fig. 7).

Zoëcia elongated, obconical, with broad vittæ having two rows of pores. Thyrostome lofty, arched above. Lower lip slightly curved. Avicularian processes large, with arched rostrum.

Locality.—Muddy Creek. (T. S. Hall).

There is in the specimen an oval hole through the cell wall, with smooth sloping edges, near the thyrostome, which has apparently been made by a small carnivorous univalve mollusc. This is quite probable, as in my search for fossil polyzoa I found many such molluscs, much smaller than a zoecium of a *Catenicella*. There is also a small echinurid depression near the upper angle on one side; the upper portion of the other side is broken away.

This is allied to *C. speciosa*, having two rows of pores; but it is much larger, and the avicularian processes are different.

***Caloporella dendrina*, n. sp.** (Pl. I., Fig. 8.)

Zoecium (fertile only found) subtriangular; lateral processes broad, with avicularia at upper angles. Front raised, smooth. Vittæ very narrow. Thyrostome lofty, arched above, straight below. Operculum (which is *in situ*) of same shape. Oecium surmounting zoecium, ventricose, with broad, punctate ridge surrounding it; front surface smooth, with linear depressed, dendroid markings ramifying from a central one.

Locality.—Muddy Creek. (T. S. Hall).

I have only seen the one figured; it is particularly interesting, as the operculum is *in situ*, a circumstance which I believe has not before been noted in the fossils.

***Caloporella cordata*, n. sp.** (Pl. I., Fig. 9.)

Zoecia (fertile only found) obconic, with small spatulate, lateral vittæ having only a few pores in two rows. Thyrostome of upper zoecium arched above and below, with a denticle on each side. Oecium cordate, adnate to zoecia with a falciform, depressed area on each side; the aperture is arched above, sinuous below, with a small sharp sinus.

Locality.—Muddy Creek. (T. S. Hall). A single specimen.

***Caloporella maculata*, n. sp.** (Pl. I., Fig. 10).

Lower zoecium subtriangular, smooth, with wide lateral processes. Upper zoecium elongate, with wide lateral processes;

projections (avicularian?) at the upper angles, but evidently not perfect. Thyrostome arched above, curved below; a depressed mark or slit on each side. Oœcium orbicular, adnate, with a vertical, narrow, pointed, elliptical pore immediately over the centre of the aperture which is arched above but imperfect below; the surface is quite smooth, but shows numerous small round spots in which the cell wall is very thin. There is a broken portion on one side of the internode which may have been another zoœcium.

Locality.—Moorabool. (T. S. Hall). A single specimen.

***Caloporella enormis*, n. sp.** (Pl. II., Fig. 11).

Zoœcia very large, elongate. Lateral vittæ broad, extending from near the base to the thyrostome, crowded with irregularly-placed pores with somewhat raised margins, not arranged in rows. Thyrostome arched above, slightly constricted near the base; lower lip protruberant, extending a short distance beyond the sides of the thyrostome. The space between the vittæ elevated, smooth.

Locality.—Balcombe Bay, Mornington. (T. S. Hall).

A single geminate pair. At once distinguished by its enormous size and the broad vittæ crowded with irregularly-placed pores.

***Caloporella rostrata*, n. sp.** (Pl. II., Fig. 12).

Zoœcia wedge-shaped, flat in front, convex behind, with very narrow lateral vittæ bearing a single row of pores. Thyrostome semi-elliptical (vertical), with small semicircular sinus in lower lip. Avicularian processes large and conical, projecting like horns.

Locality.—Muddy Creek. (T. S. Hall). A single specimen.

It is doubtful whether this ought to be placed in *Caloporella* or *Claviporella*. It has a sinus in the lower lip, which none of the *Caloporellæ* hitherto described have; this, however, may be the result of an imperfection, and, as it has vittæ, I place it in *Caloporella*.

***Strophipora bellis*, n. sp.** (Pl. II., Fig. 16).

A fertile zoœcium, with a small (normal?) zoœcium at the side. Oœcium ovoid; the greater part of the front is occupied

by a broad, quadrate, open area, with a thickened rim, exposing an irregularly punctate cell wall; the body of the cell is also thickened round the quadrate opening; there is a deep furrow between the rim of the area and the thickened border of the cell; the top of the cell is not quite perfect, the front is cracked longitudinally, it has apparently borne two avicularia; there is a subcircular opening, partially filled in with matrix, in the middle immediately above where the rim of the quadrate area turns upward and is disconnected; this rim is also disconnected in the middle of the lower portion, the ends curve downwards, are rounded, and project slightly over the aperture, which is curved above, with a wide sinus in the lower lip. The primary zoecium has a vertical, irregularly shaped ridge, with depressions on each side, in each of which is a small pore. The lateral zoecium has a longitudinal ridge, somewhat crooked, with a depression on each side; thyrostome subcircular, with a thickened peristome. The dorsal surface is divided into four oval depressed areas by thick ridges, the upper two the larger, and a small one corresponding to the back of the lateral zoecium.

Locality.—Bairnsdale. (J. Dennant).

This is a very remarkable form. I, at first, felt disposed to assign it to *S. harveyi*, which is common in some of the deposits; but Wyville Thomson's description of the oecium of that species is so very different:—"Ovicell calyptriform, sessile by a broad base in the position of one of the avicularian processes, on a cell which it replaces; back of ovicell furnished with a very large sessile avicularium."—"Dublin Nat. Hist. Rev.," April, 1858, p. 137). This species has not since been found living, so this description has not been verified. I consider Wyville Thomson mistook the enormous avicularia, which are sometimes present (in the fossils), for the oecia. His description would apply to them exactly, except that the avicularium is not always on the back of the process, it is sometimes on the front. So, pending the discovery of recent undoubted zoecia of *S. harveyi*, I have named this species *S. bellis*.

Claviporella longicollis, Waters, sp. (Pl. II., Fig. 14).

Claviporella angusta, n. sp. (*C. longicollis*, var. *angusta*, McG.), Pl. II., Fig. 15.

The oœcia of this species (*C. longicollis*) I have in two distinct forms. All my specimens, except one, show a form similar to Fig. 14, which is drawn from the most perfect one. The oœcium is adnate on a geminate pair, or rather triplet; it is globose, covered with tubercles, which are more raised on the periphery than in the central portion. The zoœcia are of the form of Fig. 24, Pl. II. (Monograph), and, in addition, the upper one has two small tubular spines, very similar to some of the recent *Claviporellæ*. The other form (Fig. 15) is that of the variety named by Dr. Macgillivray *angusta*. The oœcium is globose, with an avicularium on its summit; it is quite smooth, and there are only two zoœcia in the internode. There is a pore on each side, a little below the thyrostome, in the lower or primary zoœcium. Now that the oœcium is found, and is so different from that of Fig. 14, I assign specific rank to this variety.

Localities.—*Claviporella longicollis*, Moorabool. (T. S. Hall).
Cl. angusta, Muddy Creek. (T. S. Hall).

I have several specimens of oœcia of *C. longicollis*, but only one of *C. angusta*.

Calpidium morningtoniensis, n. sp. (Pl. II.,

Figs. 17 and 18).

Zoœcium elongate, with five fenestræ. Lateral processes narrow, flattened on the sides, with large conical avicularia in the upper angles. Thyrostome arched above, with a curved, raised extension of the outer peristome above and at the sides similar to the hoods of *C. ornatum* and *C. ponderosum*, very prominent at the sides, but not so fully developed at the top; inner peristome (thyrostome) slightly thickened. The lower lip is broken away.

Locality.—Balcombe Bay, Mornington. (T. S. Hall). A single specimen.

This genus has not hitherto been found fossil. The lower lip being broken, it is impossible to say if the thyrostome is chlithridiate, as it is in the two recent species.

Fig. 18 is a sketch of as much of the side as could be seen by tilting the slide.

***Ditaxipora internodia*, Waters, sp.**

I wish to note that I have found specimens of this species which agree with Mr. Waters' description (Q.J.G.S., Aug., 1881, p. 318) in having an oval space below the thyrostome, formed by the spreading out of the central band and a pore in it, which were apparently not present in the specimens which came under Dr. Macgillivray's notice. I have also found some which agree with the description in the Monograph. They must be considered as varieties merely; there is not sufficient difference between them to justify specific separation.

I include in this paper a description and figure of a very interesting form, which, though not belonging to the Catenicellidæ, I wish to bring under notice now, on account of its very extraordinary nature.

***Schizoporellopsis*, nov. gen.**

Zoëcia of two forms in longitudinal series. Upper zoëcium elongate; thyrostome subcircular; sinus in lower lip. Lower zoëcium oval; thyrostome semicircular, no sinus in lower lip.

***Schizoporellopsis abnormis*, n. sp. (Pl. II., Fig. 13).**

Upper Zoëcium elongate, front granular, perceptibly convex over a large oval area below the thyrostome; margin thickened, extending upwards to the middle only of the thyrostome; thyrostome subcircular with a sinus in the lower lip; peristome thin, raised. Lower zoëcium oval, somewhat pointed below; margin thick; central area depressed; surface granular, with a small circular area, slightly elevated in the lower part; thyrostome arched above, straight below, without any sinus.

Locality.—Muddy Creek. (T. S. Hall).

This is a very puzzling form, as it consists of two zoëcia which, if separate, would be relegated to different genera, or, indeed, families. I have examined it most carefully; there is no doubt as to the continuity of the cell walls, and the zoëcia are in the same plane, not one superposed upon the other. I have found only the specimen figured. It apparently forms a connecting link of a very peculiar nature between the families of Schizoporellidæ and Microporidæ.

Note.—The paragraph on page 8 in Dr. Macgillivray's Monograph, commencing "The extended lateral processes," should follow the next one describing the genus *Catenicella*, and should appear on page 9, as it is only applicable to that genus, and not to the *family* of *Catenicellidæ*.

EXPLANATION OF FIGURES.

PLATE I.

- Fig. 1.—*Catenicella orbicularis*.
 „ 2.—*C. macgillivrayi*.
 „ 3.—*C. spenceri*.
 „ 4.—*C. dædala*, single zoæcium.
 „ 5.—*C. dædala*, side view.
 „ 6.—*C. elegantissima*.
 „ 7.—*Caloporella grandis*.
 „ 8.—*C. dendrina*.
 „ 9.—*C. cordata*.
 „ 10.—*C. maculata*.

PLATE II.

- Fig. 11.—*Caloporella enormis*.
 „ 12.—*C. rostrata*.
 „ 13.—*Schizoporellopsis abnormis*.
 „ 14.—*Claviporella longicollis*.
 „ 15.—*Cl. angusta*.
 „ 16.—*Strophipora bellis*.
 „ 17.—*Calpidium morningtoniensis*.
 „ 18.—*C. morningtoniensis*, side view.